COMBINED TRANSMITTAL OF APPEAL BRIEF TO THE BOARD OF PATENT APPEALS AND INTERFERENCES & PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. 1.136(a) (Large Entity)	Docket No. DSCK-1215-C1

In Re Application Of: **Feng CAO**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/745,177	12/20/2000	DUONG, THANH P		1764	7566

Invention: **METHOD FOR COATING A GOLF BALL WITH A DRY-ON-LINE CLEAR POLYURETHANE COMPOSITION, AND GOLF BALLS COMPRISING SUCH A COATING**

COMMISSIONER FOR PATENTS:

This is a combined Transmittal of Appeal Brief to the Board of Patent Appeals and Interferences and petition under the provisions of 37 CFR 1.136(a) to extend the period for filing an Appeal Brief.

Applicant(s) hereby request(s) an extension of time of (check desired time period):

☐ One month ☒ Two months ☐ Three months ☐ Four months ☐ Five months

from: **3 MAY 2005** (*Date*) until: **5 JUL 2005** (*Date*)

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Fee for Appeal Brief:	$500.00
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TO THE COMMISSIONER FOR PATENTS:

This combined Transmittal of Appeal Brief to the Board of Patent Appeals and Interferences and petition for extension of time under 37 CFR 1.136(a) is respectfully submitted by the undersigned:

Dated: **5 JUL 2005**

Signature

JEFFREY D. WASHVILLE, REG. NO. 46,366
LORUSSO & LOUD
15 RYE STREET, SUITE 312
PORTSMOUTH, NH 03801
PHONE (603) 427-0070
FAX (603) 427-5530

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cc:

Attorney's Docket No.: DSCK-1215

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPELLANT:	FENG CAO
SERIAL NO.:	09/745,177
FILED:	December 20, 2000
FOR:	Method For Coating A Golf Ball With A Dry-On-Line Clear Polyurethane Composition, And Golf Balls Comprising Such A Coating
EXAMINER:	DUONG, THANH P
ART UNIT:	1764
CONFIRM. No.:	7566

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P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF

Jeffrey D. Washville
Registration No. 46,366
LORUSSO & LOUD
15 Rye Street, Suite 312
Pease International Tradeport
Portsmouth, NH 03801
Tel: 603-427-0070
Attorney for Appellants

Real Party in Interest

The real party in interest is Dunlop Sports Group Americas Inc., which has been assigned a 100% interest in the invention corresponding to the application under appeal.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 1-3 and 9-26 are pending and is the subject of this appeal.

Status of Amendments

After final amendments to the claims have not been submitted. Appellant is seeking allowance of the currently entered claims.

Summary of Invention

A first embodiment of the golf ball is depicted in Figure 1.

A second embodiment is recited in independent claim 11.

A third embodiment is recited in independent claim 24.

A fourth embodiment is recited in dependent claim 10.

A fifth embodiment is recited in dependent claim 15.

A sixth embodiment is recited in dependent claim 19.

A seventh embodiment is recited in dependent claim 23.

The first embodiment of the golf ball is exemplified in claim 1, which recites a golf ball that comprises an outer surface having a clear polyurethane coating disposed over the outer surface (see, e.g., pages 12-14 for a detailed description of the coating process embodied in the claims). The clear polyurethane coating is produced from reactants comprising a surfactant, a solvent, a base comprising an isocyanate and a polyol (see, e.g., pages 14-16 for a detailed description of the polyurethane embodied in the claims). The clear polyurethane coating is combined with a drying accelerator comprising a mixture of at least two metal catalysts wherein at least one metal catalyst comprises tin and at least one comprises zirconium (see, e.g., pages 16-17 for a detailed description of the drying process embodied in the claims).

The second embodiment is exemplified in independent claim 11 and includes the additional element of an ionomer

cover (as discussed on page 9), to produce a different ball system.

The third embodiment is exemplified by independent claim 24 and includes a means plus claim for surfacting, a means for solvating, a base means comprising an isocyanate and a polyol, and a means of accelerating drying (see, e.g., pages 12-17 of the detailed description).

The fourth embodiment is exemplified by claim 10. The fourth embodiment also includes the element of having a primer applied to the surface. This is supported in Figure 1 and in the specification at page 13.

The fifth embodiment is exemplified by claim 15. The fifth embodiment also includes the element of using the solvents ether acetate, xylene, N-butyl acetate, ethyl acetate, and toluene to assist quick drying. This is supported in Figure 1 and in the specification at pages 14-15.

The sixth embodiment is exemplified by claim 19. The sixth embodiment is directed toward a pot life of over two hours without resorting to the use of a plural machine. This is supported in Figure 1 and in the specification at page 20.

The seventh embodiment is exemplified by claim 23. The seventh embodiment is directed toward a primer to improve bonding that comprises aziridine and an acrylic-urethane. This is supported in Figure 1 and in the specification at page 13.

Issue

Issue - Whether claims 1-3 and 9-26 are patentable under 35 U.S.C. § 103(a) over Kennedy (6,395,861) in view of Blank (5,965,686)?

Grouping of the Claims

For each ground of rejection, contested by Appellants herein, that applies to more than one claim, such additional claims, to the extent separately identified and argued below, do not stand or fall together.

Argument

Appellant's arguments are best understood by first considering a statement made by the Patent Examiner that summarizes the basic premise for all the rejections. The statement is reproduced below for the Board's convenience.

> The *''Examiner agrees that Blank '686 suggest it is desirable to use zirconium catalyst over tin catalyst to improve cure rate but there is no suggestion of the combination (mixture) of tin and zirconium catalyst are not desirable in Blank nor Kennedy. Kennedy clearly discloses the use of tin alone or in combination with other catalysts (Col. 6, lines 23-30) and Blank '686 teaches the benefits of using zirconium catalyst to improve cure rate (Col. 6, lines 30-36). Thus, a prima facie is established since there is sufficient suggestion or motivation to modify the composition of Kennedy and the combination provides reasonable success.''*

As explained below, this statement incorrectly interprets the teaching of the two references, which leads

to an improper combination of the two. The examiner's erroneous conclusion strongly suggests the application of hindsight reasoning. The teaching of the success of the combination of catalyst is only present in the Applicant's specification and not the combination of references as required.

Issue - Whether claims 1-3 and 9-26 are patentable under 35 U.S.C. § 103(a) over Kennedy (6,395,861) in view of Blank (5,965,686)?

Independent claim 1 recites a golf ball with a clear polyurethane coating disposed on its outer surface. The coating has a surfactant, a solvent, a base coat comprising an isocyanate and a polyol. The coating is dried using a unique combination of a blend of tin and zirconium drying agents that eliminates the need for a plural machine for dry-on-line painting.

U. S. patent 6,395,861 to Kennedy, III ("the '861 patent"), discloses a ball with a coating system including a polyol, an isocyanate, a solvent and a catalyst that includes organic tin. While the '861 patent teaches that dibutyl tin dilaurate can be mixed with other catalysts, it is silent regarding zirconium or the chelated zirconium complex of dependent 2 as acknowledged by the Examiner. It is further silent as to providing an enabling disclosure for the applicants' combination. Merely suggesting

undefined combinations in the chemical arts is insufficient to provide an adequate basis for an obviousness rejection due to inherent unexpected results. (See *In re Hoek Sema*, 399 F.2D 269, 158 USPQ 569 (CCPA 1968))

With regard to Applicant's dependent claim 19, the examiner incorrectly interprets the teaching of the `861 patent regarding to the pot life on (Col. 1, lines 40-45) wherein the long pot life was the prior art method of a single catalyst requiring 6-8 hours cure time at elevated temperatures.

The examiner states that ``***it would have been obvious*** *in the view of Blank to one having ordinary skill in the art* ***to modify*** *the urethane coating of* ***Kennedy with*** *the addition of zirconium catalyst as taught by* ***Blank to provide a golf ball coating with an improved curing rate.***'' (emphasis added) The `861 patent provides no motivation to ``*provide a golf ball coating with an improved curing rate*'' using the Applicant's claimed blend of curatives. Specifically the `861 patent teaches at column 6, lines 27-30 that ''*[o]ther catalysts can be used alone or in combination,* ***preferably in amounts which produce a result that is equivalent to the result which is obtained with amounts of dibutyl tin dilaurate.***'' (emphasis added) Therefore the `861 patent does not provide motivation to one skilled in the art to

increase the speed of the reaction rate over organic tin, just to produce an equivalent speed.

The Examiner improperly uses hindsight reasoning based upon the Applicant's specification to provide the motivation to combine the references to increase the reaction rate of a tin catalyst by combining it specifically with zirconium. However, because one skilled in the art knows that either an uncontrolled reaction rate or too fast of a reaction rate can lead to deficient coating properties, which is why the `861 patent limits the amount of tin catalyst to 0.15% of the mass of polymers. Therefore without further guidance or teaching, one skilled in the art would not be motivated to further increase the reaction rate using dibutyl tin dilaurate beyond the equivalent amount. One skilled in the arts would not be motivated to increase the reaction rate using a tin catalyst alone or in combination with another catalyst.

U.S. Patent 5,965,686 to Blank et al., ("the '686 patent"), is directed to the use of zirconium catalysts either alone or in combination with hafnium for curing urethanes. The `686 patent teaches away from the use of tin catalysts as having both inferior physical properties compared to zirconium and being detrimental to the drying performance thereby rendering the reference improper to provide motivation to combine zirconium and tin catalysts.

The Examiner is correct in stating that the `686 patent teaches ``*a urethane coating with improved cure rate (Col.*

6, lines 30-36) over conventional tin catalyst at low temperature or in the presence of moisture over tin catalyst'', but the statement is inaccurate when taken out of context of the entire disclosure of the `686 patent. The `686 patent is not drawn to coating golf balls, but toward items that require fast room temperature cure such as coatings on floors. The `686 patent is specifically directed toward solving the problems of coating floors, which are different from the subject of the Applicants' claims directed toward spherical golf balls.

It is well known to those skilled in the art that aerodynamic factors are critical in golf balls. The `686 patent's fast room temperature cure using a zirconium catalyst applied with a plural machine may produce a surface satisfactory when applied to a flat surface such as floors, but may not be sufficient when applied to a curved surface of a golf ball. One skilled in the art therefore would not be motivated to combine a tin catalyst with a zirconium catalyst solely based on speed of cure. If one skilled in the art reviewed the combination it would lead one to either use tin catalyst as directed by the `861 patent for use on golf balls or discard the use of the inferior performing tin and use a zirconium/hafnium catalyst blend. Regardless one skilled in the art would not be motivated to combine the references to produce the Applicants' claimed catalyst blend.

Whether or not disclosures in two or more prior art references are properly combinable depends, generally, on whether there is some teaching, suggestion or motivation in those references or elsewhere in the prior art to suggest the desirability of making the combination. The mere fact that it is possible to find isolated disclosures having some individual features that might be combined in a manner that would result in the claimed invention is not enough. There must be something in the prior art itself that suggests the desirability of the claimed combination. It is improper to pick and choose among the individual parts of various prior art references as a mosaic to recreate a facsimile of the claimed invention using the inventors' disclosure as an instruction book or blue print on how to reconstruct the prior art. To do so is impermissible hindsight reasoning. Additionally, the problem confronted by the inventor must be considered in determining whether it would have been obvious to combine the references in that manner to solve a particular problem. See *In Re Sang Su Lee*, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002) and *In Re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1599 (Fed. Cir. 1988).

The `868 patent to one of ordinary skill in the golf ball art would teach away from the use of a zirconium in the golf ball cover at column 5, lines 40-50 stating that:

> *The catalyst of the present invention is particularly suitable for applications where exceptionally fast cure is required. For example, the* ***catalysts of the present invention is particularly useful in plural component spray gun applications***

> *wherein the catalyst is added to one of the components and the polyol and the isocyanate is mixed in situ in the spray gun. These are important in applications for roof or floor coatings,* ***where the person applying the coating would be able to walk on the freshly applied coating a few minutes after the coating has been applied.*** (emphasis added)

Thus, one skilled in the art of golf balls would understand that an expensive plural component gun would be required with the use of either the zirconium or zirconium/hafnium catalyst even at room temperature. The Applicant's claimed blend of a tin with a zirconium offers a two-hour pot life at room temperature without requiring an expensive plural machine, but still achieves a full durable cure at 180 degrees in ten minutes on a drying line.

Assuming that the added expense of requiring a plural machine would still not deter one skilled in the golf ball arts to use zirconium as a catalyst, the `686 patent further teaches away from the combination with any tin-based catalyst, which is described as being deficient in all properties. One skilled in the art would not be motivated to combine the zirconium catalyst of the `686 patent with the tin catalysts of the `861 patent that teaches the use of a combination of tin based compounds. Tin catalysts in the `686 patent are taught as being inferior in both its performance properties and toxicity levels. (see presented below: Column 6, line 50 to column 7, line 7)

> *The catalyst of this invention also preferentially catalyze the isocyanate-hydroxy reaction over the isocyanate-water reaction.* ***Organo tin does not exhibit***

> ***this preferential catalysis***, *and also catalyze the isocyanate-water reaction,* ***which leads to the formation of carbon dioxide and gassing***. *For example, to prepare a polyurethane coating with exclusive carbamate linkages, a coating formulation containing HDI based aliphatic isocyanate and a polyurethane diol with beta-carbamate was formulated. When the metal complex of the present invention was used as the catalysts, a hard glossy film was obtained.* ***Whereas, with dibutyltin dilaurate as the catalyst, a hazy film was obtained.*** *This is due to the competing reaction of isocyanate with moisture in the air.*
>
> ***Furthermore, it is known that commercial organotin urethane catalysts will affect the durability of the final product. This is due to the catalytic effect of organotin catalysts on the degradation of the polymer product***. *The metal complexes of the present invention shows less of a catalytic effect on the degradation of the polymer than the tin urethane catalysts. For a solution with polyester resin, water and catalysts, the degradation rate of polyester with the catalyst of this invention is 5 times slower than a typical tin catalyst.* (emphasis added)

One skilled in the art of golf ball coating would not be motivated to combine what is described as an inferior tin catalyst in the '686 patent with either zirconium or any other metal catalyst to improve drying. The performance aspects of clarity and durability are critical to the cover of a golf ball that is repeatedly struck with an abrasive iron club.

A prior art reference must be considered for all it teaches and discloses including disclosure that teaches away from the invention. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 227 U.S.P.Q. 657 (Fed.

Cir. 1985), cert. Denied, 475 U.S. 1017 (1986). To do otherwise would allow references to be considered piece meal, and an applicant's disclosure to be considered as a blue print, the ``essence of hindsight''. *In Re Dembiczak,* 175 F.3d at 999 (internal citation omitted). As discussed above, the teaching of an ``arrangement unit'' is clearly opposite to the Appellants' claimed invention. The Appellants' claims are therefore allowable over the cited combination, which fails to teach each and every claim limitation either singly or in combination. Reversal of the rejection is respectfully requested.

The statement that ''*Examiner agrees that Blank '686 suggest it is desirable to use zirconium catalyst over tin catalyst to improve cure rate but there is no suggestion of the combination (mixture) of tin and zirconium catalyst are not desirable in Blank nor Kennedy. Kennedy clearly discloses the use of tin alone or in combination with other catalysts (Col. 6, lines 23-30) and Blank '686 teaches the benefits of using zirconium catalyst to improve cure rate (Col. 6, lines 30-36). Thus, a prima facie is established since there is sufficient suggestion or motivation to modify the composition of Kennedy and* ***the combination provides reasonable success.***'' (emphasis added) The ``reasonable success'' discussed by the Examiner for use in golf balls is based solely upon the teaching of the Applicants'

specification that was used as a template to combine the references.

Once again, the legal requirement to provide specific evidence of a teaching, suggestion or motivation to combine what is alleged to be commonly known with a prior art reference has not been met. See, *In Re Hans Oetiker*, 977 F.2d 1443, 1446-47; 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992) (taking notice of common everyday mechanical concepts is not sufficient to obviate an invention without giving reasons why). The Appellants respectfully request allowance of claims based on the cited art combination being improper and insufficient for failing to teach or suggest the claimed invention.

Conclusion

For the foregoing reasons, the claims are patentable. Reversal of all rejections is courteously solicited. It is requested that all rejections be withdrawn and the application be passed to issue.

Respectfully submitted,

LORUSSO & LOUD

Dated: 5 JUL 05

Jeffrey D. Washville

Reg. No. 46,366

15 Rye Street, Suite 312
Portsmouth, NH 03801
Tel.: (603) 427-0070
FAX: (603) 427-5530

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Jeffrey D. Washville

Appendix

1. A golf ball comprising:

an outer surface; and,

a clear polyurethane coating disposed over said outer surface produced from reactants comprising:

a surfactant;

a solvent;

a base comprising an isocyanate and a polyol; and,

a drying accelerator comprising a mixture of at least two metal catalysts wherein at least one said metal catalyst comprises tin and at least one said metal catalyst comprises zirconium.

2. The golf ball of claim 1 wherein the drying accelerator comprises a catalyst containing chelated zirconium complex.

3. The golf ball of claim 1 wherein the drying accelerator comprises a catalyst containing dibutyl tin dilaurate.

Claims 4-8 (canceled)

9. The golf ball of claim 1 wherein said clear polyurethane coating comprises the reaction products of propylene glycol monomethyl and hexamethylene diisocyanate.

10. The golf ball of claim 1 further comprising a primer coat applied onto said cover surface prior to the application of said clear polyurethane coating.

11. A golf ball comprising:

an ionomer cover having an outer surface; and,

a clear polyurethane coating disposed over said outer surface produced from the reactants comprising:

a surfactant;

a solvent;

a base comprising an isocyanate and a polyol; and,

a drying accelerator comprising a least two metal catalysts wherein at least one said metal catalyst comprises tin and at least one said metal catalyst comprises zirconium.

12. The golf ball of claim 11 wherein the drying accelerator comprises a chelated zirconium complex catalyst wherein said clear polyurethane coating is applied to said outer surface on a production line and dries without the assistance of a plural machine.

13. The golf ball of claim 12 wherein the drying accelerator comprises a catalyst containing dibutyl tin dilaurate.

14. The golf ball of claim 11 wherein said base further comprises propylene glycol monomethyl prior to drying.

15. The golf ball of claim 14 wherein said solvent is a mixture further comprising ether acetate, xylene, N-butyl acetate, ethyl acetate, and toluene prior to drying.

16. The golf ball of claim 11 wherein said base comprises hexamethylene diisocyanate prior to drying.

17. The golf ball of claim 16 wherein said solvent further comprises xylene, N-butyl acetate, and toluene prior to drying.

18. The golf ball of claim 11 wherein the drying accelerator comprises a catalyst containing dibutyl tin dilaurate.

19. The golf ball of claim 11 wherein said clear polyurethane coating has a pot life over 2 hours.

20. The golf ball of claim 11 where said surfactant is a flurosurfactant.

21. The golf ball of claim 20 wherein said surfactant is a mixture comprising fluoroaliphatic polymeric ester, potassium fluoroalkyl carboxylate, water, 2-Butoxyethanol, and Ethyl alcohol.

22. The golf ball of claim 11 further comprises a primer coat applied onto said cover surface prior to the application of said clear polyurethane coating.

23. The golf ball of claim 22 wherein said primer comprises aziridine and an acrylic-urethane.

24. A golf ball comprising:

an outer surface; and,

a clear polyurethane coating disposed over said outer surface comprising:

a means for surfacting;

a means for solvating;

a base means comprising an isocyanate and a polyol; and,

a means of accelerating drying wherein said means of accelerating drying comprises a mixture of at least two metal catalysts wherein at least one said catalyst comprises tin and wherein at least one said catalyst comprises zirconium.

25. The golf ball of claim 24 further comprising a primer coat applied onto said outer surface prior to the application of said clear polyurethane coating.

26. The golf ball of claim 24 wherein said means of accelerating comprises at least two metal catalysts wherein at least one said catalyst comprises a chelated zirconium complex.